



# STEM Vocabulary Builder

Whether on field trips, during projects, or doing activities, staff should be aware of processes, techniques, and vocabulary to reinforce scientific thinking with children and youth.

Customize this checklist to fit your projects and activities, review it with staff, and use it for observation, training, and staff feedback.



# STEM Vocabulary Builder

## TALKING SCIENCE

| Scientific Processes   | Guiding Questions  | Associated Vocabulary  | Example Activity  | Staff use |   | Students use |   | NOTES |
|--|--|--|---|-----------|---|--------------|---|-------|
|  |  |  |   | Y         | N | Y            | N |       |
| <b>Questioning, hypothesizing</b><br>Forming questions<br>Coming up with possible explanations or answers (hypotheses) | <ul style="list-style-type: none"> <li>• Why is that?</li> <li>• How does it work? How does it happen?</li> <li>• What might happen if...?</li> <li>• What might you see?</li> </ul>                           | Question<br>Hypothesis<br>Wonder<br>Curious  | Take a walk in the woods or in a park to explore plant life.  |           |   |              |   |       |
| <b>Observation</b><br>Using the senses to gather information   | <ul style="list-style-type: none"> <li>• What do you see? Hear? Smell? How does it feel?</li> <li>• What is going on? How do you know?</li> <li>• Does this seem like anything else you know about?</li> </ul> | Observe<br>Observation<br>Senses<br>Describe<br>Experiment   | Notice and talk about different plants and seeds.   |           |   |              |   |       |
| <b>Classification</b><br>Ordering and grouping observations  | <ul style="list-style-type: none"> <li>• Which are the same? Similar?</li> <li>• Different?</li> <li>• How are they similar or different?</li> </ul>   | Same<br>Similar<br>Different<br>Characteristics<br>Features<br>Classify<br>Classification<br>Sort<br>Group | Collect a sample of different seeds and leaves. Group them by different characteristics (e.g., size, shape, color, texture, where they were found). |           |   |              |   |       |
| <b>Recording and communicating</b><br>Explaining and presenting to others  | How do you describe this?<br>What did you do? How did that happen?<br>What were you looking for?   | Report<br>Explain<br>Reason<br>Reasoning<br>Justification  | Ask children to explain what they found, where, and why they grouped the seeds and leaves the way they did.   |           |   |              |   |       |



# STEM Vocabulary Builder

|   |   |  |  |  |  |  |  |  |
|---|---|--|--|--|--|--|--|--|
| <b>Use data (e.g., numbers and measurement) to represent and explain</b>  | <ul style="list-style-type: none"> <li>• How many?</li> <li>• How often?</li> <li>• How much?</li> <li>• How long did it take? When?</li> <li>• How big? What shapes?</li> <li>• How many different...?</li> </ul>  | Data<br>Count<br>Represent<br>Measurements<br>Length, width, area, circumference | How many types of seeds and leaves?<br>How many of each? Which are the most common?  |  |  |  |  |  |
| <b>Form conclusions, question further, predict, and revise hypotheses</b> | <ul style="list-style-type: none"> <li>• What did you find out?</li> <li>• What do you wonder about? What else do you want to know?</li> <li>• Is there another explanation?</li> <li>• What do you think will happen if...</li> <li>• What might change findings?</li> </ul> | Conclusion<br>Findings<br>Explanation<br>Predict                                 | Which seeds grow into which plants and leaves?<br>Who eats these seeds and leaves? Do people eat seeds and leaves? What makes seeds or leaves edible or not, for whom? |  |  |  |  |  |

## TALKING MATH

Use lots of math vocabulary and questions throughout ALL activities, not just during math lessons or homework time.



# STEM Vocabulary Builder

| During...   | Ask and talk about...   | Associated Vocabulary   | Staff use |   | Students use |   |
|---|---|---|-----------|---|--------------|---|
|   |   |   | Y         | N | Y            | N |
| Snack time  | <ul style="list-style-type: none"> <li>How many will you need?</li> <li>How many more? About how many? Estimate. Approximately how much?</li> <li>How many extra are there?</li> <li>Count these out by 2s</li> <li>What percent is sugar?</li> </ul>   | More than, less than<br>Plus, minus, take away, add<br>Estimate, approximately<br>Divide, multiply, times<br>Percent  |           |   |              |   |
| Forming teams, playing games, music, art                  | <ul style="list-style-type: none"> <li>Divide into groups of 2 (or 5, or 3)</li> <li>Count off by 2s, or odds and evens, or A's and B's</li> <li>How many points? How many more? What's the total?</li> <li>What's the rhythm; tap it out.</li> <li>What proportion of which color? What is the pattern?</li> </ul>   | Divide<br>Odd, even<br>Total<br>Represent<br>Proportion<br>Pattern<br>Shapes  |           |   |              |   |
| Dismissal, schedules, events                              | <ul style="list-style-type: none"> <li>What time will that happen? Later or earlier? Before or after? In how long (minutes, hours, days, weeks)?</li> </ul>   | Time vocabulary<br>Measurement words<br>Location and position words   |           |   |              |   |
| General conversation, family, pets, friends, making plans | <ul style="list-style-type: none"> <li>Is that (or he or she) bigger or smaller? Older or younger? Taller or shorter? Heavier or lighter?</li> <li>How much will that cost? Do you have enough? Is that more or less?</li> <li>How many pairs do you have?</li> <li>Can you make a list? Can you put them in order? How do you rank them? Same or different? Straight or curved? Equal or unequal?</li> <li>How else can you say that?</li> </ul> | Relationship, comparison vocabulary<br>Rank, prioritize, order<br>Counting, measurement<br>Distance<br>Divide, divide in half, divide in two<br>Take away, minus, subtract<br>Whole, part, fraction, piece, percent<br>Add, more than, plus, sum, total |           |   |              |   |
| Going places, finding things, cleaning up, neighborhood   | <ul style="list-style-type: none"> <li>Is that closer or further?</li> <li>Near or far? How far?</li> <li>How long does it take?</li> <li>Right or left?</li> <li>Above, below, next to, in between? Where is it? How do you get there?</li> </ul>  | Location, position, relationship words<br>Mapping, map vocabulary   |           |   |              |   |
| Describing things, looking at things                      | <ul style="list-style-type: none"> <li>What shape is that? What size? Bigger or smaller?</li> <li>Which are the same; different? How are they the same or different?</li> <li>Is that two-dimensional or three-dimensional?</li> </ul>  | Circle, square, rectangle, triangle<br>Cube, pyramid<br>Round, curved, straight<br>Equal, unequal<br>Corner, point  |           |   |              |   |

Customize this list to fit your age groups, review with staff, and use it for supervision and follow-up.